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- 1 [ObNet: an object-oriented approach for supporting large, long-lived, highly configurable systems](#) ☐

T. Gallo, G. Serrano, F. Tisato

May 1989 **Proceedings of the 11th international conference on Software engineering**

Full text available: pdf(853.96 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: multi environments, multi representations object dependency, object oriented approach, software engineering environments

- 2 [Advanced data processing in KRISYS: modeling concepts, implementation techniques, and client/server issues](#) ☐

Stefan DeBloch, Theo Härder, Nelson Mattos, Bernhard Mitschang, Joachim Thomas

May 1998 **The VLDB Journal — The International Journal on Very Large Data Bases**,
Volume 7 Issue 2

Full text available: pdf(210.27 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The increasing power of modern computers is steadily opening up new application domains for advanced data processing such as engineering and knowledge-based applications. To meet their requirements, concepts for advanced data management have been investigated during the last decade, especially in the field of object orientation. Over the last couple of years, the database group at the University of Kaiserslautern has been developing such an advanced database system, the KRISYS prototype. In this ...

Keywords: Client/server architectures, Consistency control, Object-oriented modeling concepts, Query processing, Run-time optimization

- 3 [Control flow and data structure documentation: two experiments](#) ☐

Ben Shneiderman

January 1982 **Communications of the ACM**, Volume 25 Issue 1

Full text available: pdf(764.99 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Two experiments were carried out to assess the utility of external documentation aids such as macro flowcharts, pseudocode, data structure diagrams, and data structure descriptions. A 223 line Pascal program which manipulates four arrays was used. The program interactively handles commands that allow the user to manage five lists of items. A comprehension test was given to participants along with varying kinds of external documentation. The results indicate that for this program the data st ...

Keywords: data structure diagrams, pseudocode

4 Towards a semantic view of an extended entity-relationship model ☐

Martin Gogolla, Uwe Hohenstein

September 1991 **ACM Transactions on Database Systems (TODS)**, Volume 16 Issue 3

Full text available:  [pdf\(3.09 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


Nearly all query languages discussed recently for the Entity-Relationship (ER) model do not possess a formal semantics. Languages are often defined by means of examples only. The reason for this phenomenon is the essential gap between features of query languages and theoretical foundations like algebras and calculi. Known languages offer arithmetic capabilities and allow for aggregates, but algebras and calculi defined for ER models do not. This paper introduces an extended ER m ...

Keywords: abstract data type, aggregate function, calculus, entity-relationship model, formal semantics, relational completeness, safeness, semantic data model

5 Curriculum '78: recommendations for the undergraduate program in computer science—a report of the ACM curriculum committee on computer science ☐

Richard H. Austing, Bruce H. Barnes, Della T. Bonnette, Gerald L. Engel, Gordon Stokes

March 1979 **Communications of the ACM**, Volume 22 Issue 3

Full text available:  [pdf\(2.20 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)


Contained in this report are the recommendations for the undergraduate degree program in Computer Science of the Curriculum Committee on Computer Science (C3S) of the Association for Computing Machinery (ACM). The core curriculum common to all computer science undergraduate programs is presented in terms of elementary level topics and courses, and intermediate level courses. Elective courses, used to round out an undergraduate program, are then discussed, and ...

Keywords: computer science curriculum, computer science education, computer science undergraduate degree programs, computer sciences courses, continuing education, service courses

6 Limitations of record-based information models ☐

William Kent

March 1979 **ACM Transactions on Database Systems (TODS)**, Volume 4 Issue 1

Full text available:  [pdf\(2.14 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Record structures are generally efficient, familiar, and easy to use for most current data processing applications. But they are not complete in their ability to represent information, nor are they fully self-describing.

Keywords: conceptual model, data model, entities, first normal form, information model,


normalization, records, relationships, semantic model

7 Cactis: a self-adaptive, concurrent implementation of an object-oriented database management system



Scott E. Hudson, Roger King

September 1989 **ACM Transactions on Database Systems (TODS)**, Volume 14 Issue 3

Full text available:  [pdf\(2.65 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


Cactis is an object-oriented, multiuser DBMS developed at the University of Colorado. The system supports functionally-defined data and uses techniques based on attributed graphs to optimize the maintenance of functionally-defined data. The implementation is self-adaptive in that the physical organization and the update algorithms dynamically change in order to reduce disk access. The system is also concurrent. At any given time there are some number of computations that must be performed t ...

8 Technical reports



SIGACT News Staff

January 1980 **ACM SIGACT News**, Volume 12 Issue 1

Full text available:  [pdf\(5.28 MB\)](#)

Additional Information: [full citation](#)

9 Session I: Linguistic and computational semantics



Brian Cantwell Smith

June 1982 **Proceedings of the 20th conference on Association for Computational Linguistics**

Full text available:  [pdf\(804.50 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)

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We argue that because the very concept of computation rests on notions of interpretation, the semantics of natural languages and the semantics of computational formalisms are in the deepest sense the same subject. The attempt to use computational formalisms in aid of an explanation of natural language semantics, therefore, is an enterprise that must be undertaken with particular care. We describe a framework for semantical analysis that we have used in the computational realm, and suggest that i ...

10 Searching in metric spaces



Edgar Chávez, Gonzalo Navarro, Ricardo Baeza-Yates, José Luis Marroquín

September 2001 **ACM Computing Surveys (CSUR)**, Volume 33 Issue 3

Full text available:  [pdf\(916.04 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The problem of searching the elements of a set that are close to a given query element under some similarity criterion has a vast number of applications in many branches of computer science, from pattern recognition to textual and multimedia information retrieval. We are interested in the rather general case where the similarity criterion defines a metric space, instead of the more restricted case of a vector space. Many solutions have been proposed in different areas, in many cases without cross ...

Keywords: Curse of dimensionality, nearest neighbors, similarity searching, vector spaces


11



The family of concurrent logic programming languages

Ehud Shapiro

September 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 3

Full text available:  [pdf\(9.62 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Concurrent logic languages are high-level programming languages for parallel and distributed systems that offer a wide range of both known and novel concurrent programming techniques. Being logic programming languages, they preserve many advantages of the abstract logic programming model, including the logical reading of programs and computations, the convenience of representing data structures with logical terms and manipulating them using unification, and the amenability to metaprogramming ...

12 A survey of approaches to automatic schema matching

Erhard Rahm, Philip A. Bernstein

December 2001 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 10 Issue 4

Full text available:  [pdf\(196.22 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)


Schema matching is a basic problem in many database application domains, such as data integration, E-business, data warehousing, and semantic query processing. In current implementations, schema matching is typically performed manually, which has significant limitations. On the other hand, previous research papers have proposed many techniques to achieve a partial automation of the match operation for specific application domains. We present a taxonomy that covers many of these existing approaches ...

Keywords: Graph matching, Machine learning, Model management, Schema integration, Schema matching

13 A logic-based foundation of discrete event modeling and simulation

Ashvin Radiya, Robert G. Sargent

January 1994 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 4 Issue 1

Full text available:  [pdf\(3.33 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

A logic-based foundation of discrete event modeling and simulation is presented by defining (1) its fundamental concepts and terms from a perspective commonly held by logicians, (2) a modal Discrete Event Logic LDE. The ways of expressing models using LDE are discussed and compared with the ways of expressing models in simulation languages that support the event scheduling world view. The logic-based foundation provides ...

Keywords: discrete event modeling, discrete event simulation, logic, logic of events and actions, logic of procedural programming, model-theoretic semantics, quantifiers logic, simulation procedure, temporal logic, time flow mechanism

14 The principled design of large-scale recursive neural network architectures—dag-rnns and the protein structure prediction problem

Pierre Baldi, Gianluca Pollastri

December 2003 **The Journal of Machine Learning Research**, Volume 4

Full text available:  [pdf\(231.40 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


We describe a general methodology for the design of large-scale recursive neural network architectures (DAG-RNNs) which comprises three fundamental steps: (1) representation of a given domain using suitable directed acyclic graphs (DAGs) to connect visible and hidden node variables; (2) parameterization of the relationship between each variable and its

parent variables by feedforward neural networks; and (3) application of weight-sharing within appropriate subsets of DAG connections to capture s ...

15 Dynamic restructuring of databases with generation data structures

Rob Gerritsen, Howard L. Morgan

October 1976 **Proceedings of the annual conference**


Full text available:  [pdf\(602.36 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Most logical database restructuring schemes require a complete pass through the database for reformatting. Our approach is to leave the database in situ and to permit a mixture (several generations) of structures to co-exist. Each generation of structure is described in a Generation Data Structure Schema, which has a generic structure of its own. A Restructuring Data Definition Language is proposed for describing the evolution from one schema to the next. Steps toward implementation are dis ...

16 Proximal nodes: a model to query document databases by content and structure

Gonzalo Navarro, Ricardo Baeza-Yates

October 1997 **ACM Transactions on Information Systems (TOIS)**, Volume 15 Issue 4

Full text available:  [pdf\(550.43 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)


A model to query document databases by both their content and structure is presented. The goal is to obtain a query language that is expressive in practice while being efficiently implementable, features not present at the same time in previous work. The key ideas of the model are a set-oriented query language based on operations on nearby structure elements of one or more hierarchies, together with content and structural indexing and bottom-up evaluation. The model is evaluated in regard t ...

Keywords: expressivity and efficiency of query languages, hierarchical documents, structured text, text algebras

17 Knowledge-based document retrieval in office environments: the Kabiria system

Augusto Celentano, Maria Grazia Fugini, Silvano Pozzi

July 1995 **ACM Transactions on Information Systems (TOIS)**, Volume 13 Issue 3

Full text available:  [pdf\(2.14 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

In the office environment, the retrieval of documents is performed using the concepts contained in the documents, information about the procedural context where the documents are used, and information about the regulations and laws that discipline the life of documents within a given application domain. To fulfill the requirements of such a sophisticated retrieval, we propose a document retrieval model and system based on the representation of knowledge describing the semantic contents of d ...

Keywords: browser, class, hypertext, instance, knowledge base, link, object orientation, user interface

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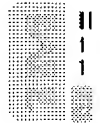
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